

ADDITIONS TO THE FLORA OF GUAM

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In 1914 I published an enumeration of the plants of Guam¹ in which about five hundred fifty species are included. Since that paper was published some additional collections have been made in Guam by Mr. Peter Nelson, of the Guam Experiment Station, and in the early part of 1918 a grant of 50 dollars was made to him from the income of the Robinson Memorial Fund of the New York Botanical Garden for the purpose of assisting him in the prosecution of field work in Guam. The arrangements under which this grant was made were that the material collected should be submitted to me for identification; one set to be retained for the herbarium of the Bureau of Science; one set to be returned to the Guam Experiment Station; and the remaining duplicate material to be transmitted to the New York Botanical Garden for distribution by that institution.

Shortly after the field work was commenced by Mr. Nelson, Guam was visited by an unusually severe typhoon, July 6, 1918, resulting in considerable damage to the equipment of the Agricultural Experiment Station there and in the destruction of the field outfit that had been provided for Mr. Nelson's botanical work, and a considerable amount of prepared botanical material. The field work was consequently delayed as several months elapsed before it was possible to replace the destroyed equipment. The collections already made have yielded several species and representatives of a few genera, new to Guam, as well as at least two undescribed species. These data have been incorporated in the present paper, together with a few changes in nomenclature.

SCHIZAEACEAE

SCHIZAEA Smith

SCHIZAEA DICHOTOMA (Linn.) Sm. in Mém. Acad. Turin 5 (1793)
422, t. 9, f. 9.

GUAM, *Nelson 221*, on tree trunks at Cotot, associated with *Psilotum nudum* Griseb. A widely distributed species in the Old World Tropics, the genus new to Guam.

¹ Philip. Journ. Sci. 9 (1914) Bot. 17-155.

CYATHEACEAE

CYATHEA Smith

CYATHEA HAENKEI (Presl) comb. nov.

Alsophila haenkei Presl Rel. Haenk. 1 (1825) 68.

Cyathea marianna Gaudich. Bot. Freyc. Voy. (1826) 265.

GUAM, Nelson 538, May, 1919, in ravines near the headwaters of a tributary to the Pago River.

The type of Presl's species was from the Marianne Islands, in all probability from Guam, while that of Gaudichaud was from Guam. Both have been reduced as synonyms of *Alsophila extensa* (Forst.) R. Br., which does not appear to me to be correct. Regarding the occurrence of this species in Guam I wrote to Mr. Nelson in September, 1914, supplying him with photographs of Philippine tree ferns, and suggested that he search for the Guam species, to which he replied that in his fourteen years residence in Guam, in which time he had visited most parts of the Island, he had never seen any tree ferns. A few specimens were located by him in May, 1919, apparently very old plants. The larger plants were about 3 m high, the trunk 15 to 20 cm in diameter below, tapering to 10 cm near the top. The species is apparently very rare and local in Guam and is probably approaching extinction.

GRAMINEAE

THUAREA Persoon

THUAREA INVOLUTA (Forst. f.) R. & S. Syst. 2 (1817) 782.

Ischaemum involutum Forst. f. Prodr. (1786) 73.

Thuarea sarmentosa Pers. Syn. 1 (1805) 110.

GUAM, Anigua, Nelson 342, December, 1919, along the seashore, local name *las-aga*. A common Malayan-Polynesian strand plant, but not previously recorded from Guam.

GARNOTIA Brongniart

GARNOTIA STRICTA Brongn. in Bot. Duperry's Voy. (1829) 132, t. 21.

GUAM, hills back of Piti, Nelson 359, 403, December, 1918, and February, 1919. The genus is new to Guam, the species having been originally described from Tahiti, but now, as a somewhat variable one, known to extend from India, through Malaya to Hawaii.

DIGITARIA Heister

DIGITARIA ROBINSONII sp. nov.

Species *D. pacificae* Stapf et *D. stenotaphrodi* Stapf affinis differt racemis numerosis, plerumque circiter 15, confertis, racemose dispositis.

A glabrous, erect, apparently tufted perennial grass up to 60 cm high. Leaves rather rigid, linear-lanceolate, 15 to 25 cm long, 5 to 8 mm wide, smooth, slenderly acuminate. Inflorescence exserted, composed of about 15, ascending, somewhat crowded, racemosely arranged spikes 6 to 12 cm in length, the axis of the inflorescence up to 4 cm long. Axis of the spikes about 1 mm wide, the spikelets numerous, oblong to oblong-lanceolate, about 2.5 mm long, alternate, in two rows. First glume obsolete or reduced to an oblong-lanceolate, somewhat hyaline, pilose scale less than 1 mm in length. Second glume somewhat pubescent, 5- or 7-nerved, usually acute, the margins somewhat inflexed over the flowering glume. Flowering glume lanceolate, glabrous, as long as the second empty glume.

GUAM, Cabras Island, *Nelson 520* (type) April 24, 1919, near the seashore. The same species is represented by *J. Guerrero 471*, collected on rocks at Anaw Point, July 26, 1916.

This species manifestly belongs in the small group of Polynesian ones discussed by Stapf following his description of *Digitaria pacifica* which includes *D. pacifica* Stapf, from Christmas Island; *D. stenotaphrodes* Stapf, which extends from the Caroline Islands to the Paumotu Archipelago; and *D. platycarpha* Stapf, from Bonin Islands. These species, as Stapf has indicated, form a well-marked natural group which seems to be peculiar to the Pacific islands. To this group may also be added *Digitaria mariannensis* Merr., the type of which was also from Cabras Island, Guam, but which differs radically from the other species mentioned above in its entirely different habit; in its small size; in its paired spikes; and in being ciliate-pilose. The group is well characterized by its very greatly reduced or obsolete first glume, the spikelets generally consisting of a single empty glume with the flowering glume and its palea. *Digitaria robinsonii* is well characterized in the group by its numerous spikes.

CYPERACEAE

SCLERIA Linnaeus

SCLERIA LITHOSPERMA (Linn.) Sw. Prodr. (1788) 18.

GUAM, Nasso River, *Nelson 308*, March 21, 1918, common along the banks of the river. A common pantropic species not previously recorded from Guam.

COMMELINACEAE

ANEILEMA R. Brown

ANEILEMA VITIENSE Seem. Fl. Vit. (1865) (73) 312, t. 96, var. PETIOLATA C. B. Clarke in DC. Monog. Phan. 3 (1881) 220.

GUAM, back of Sinajana, *Nelson 413*, January 1, 1919, in damp places at the base of limestone cliffs. The Philippines, Moluccas, and Polynesia.

LEGUMINOSAE

SERIANTHES Bentham

SERIANTHES NELSONII sp. nov.

Arbor alta, partibus junioribus et inflorescentiis et fructibus ferrugineo-pubescentibus; foliis circiter 20 cm longis, pinnis 12- ad 20-jugis, foliolis circiter 30-jugis, oblongis, obtusis, circiter 5 mm longis; floribus paucis, cylindratis, breviter pedicellatis, corollae tubo circiter 12 mm longo, lobis lanceolatis, 5 ad 6 mm longis; leguminis circiter 12 cm longis, 2 ad 2.5 cm latis.

A large tree reaching a height of over 20 meters and a trunk diameter of nearly 2 meters, the younger parts, inflorescences, and fruits ferruginous-pubescent. Branches terete, grayish or brownish. Leaves up to 23 cm long, the petioles and rachis ferruginous-pubescent, the latter usually with a prominent gland between the bases of each pair of pinnae; pinnae 12 to 20 pairs, 5 to 7 cm long; leaflets 25 to 30 pairs, oblong, obtuse, about 5 mm long and 2 mm wide, the upper surface glabrous, the lower paler and sparingly pubescent. Flowers few, pink, their pedicels pubescent, stout, 2 mm long or less. Calyx cylindric, pubescent, about 7 mm long, the lobes ovate, acuminate, about 1.5 mm long. Corolla pubescent, cylindric, the tube about 12 mm long, the lobes lanceolate, acuminate, recurved, 5 to 6 mm long. Mature pods about 12 cm long, 2 to 2.5 cm wide, densely ferruginous-pubescent, the valves faintly constricted between the seeds, almost woody; seeds hard, shining, smooth, brown, flattened, elliptic, about 1 cm long, 8 mm wide.

GUAM, Upe District and hills back of Abu, *Nelson s. n.*, 23, 34, 240 (type), in flower in July and in fruit in December, local name *hayun lago*.

This very characteristic species is readily distinguishable in the genus by its small leaflets and its relatively narrow pods. It was originally collected in the Upe District, and regarding its occurrence there Mr. Nelson writes as follows:

The *hayun lago* is a very large and beautiful tree found at Upe at the northern end of the Island, and from what I could ascertain is

very scarce. The native name *hayun lago* means foreign wood, and would indicate that the tree is an introduced one in Guam. Few of the natives have ever seen the species. I saw two trees standing close together with trunks perhaps 6 feet in diameter, and a height of from 60 to 70 feet.

EUPHORBIACEAE

EUPHORBIA Linnaeus

EUPHORBIA MACGILLIVRAYI Boiss. in DC. Prodr. 15³ (1862) 26.

GUAM, *Nelson 406*, December, 1918, on rocks along the Atautauo road.

The species has previously been reported only from Australia. It is also represented by *Volkens 102* (in part) from Yap, Caroline Islands, this number having been identified by Volkens as *Euphorbia serrulata* Reinw. My sheet of this number presents two distinct species; the softly pubescent one I here refer to Boissier's species, while the glabrous form may be a robust form of *Euphorbia serrulata* Reinw.

STERCULIACEAE

MELOCHIA Linnaeus

MELOCHIA VILLOSISSIMA (Presl) comb. nov.

Riedleia villosissima Presl Rel. Haenk. 2 (1835) 146.

Melochia hirsutissima Merr. in Philip. Journ. Sci. 9 (1914) Bot. 113.

GUAM, *McGregor 456* (type of *Melochia hirsutissima* Merr.), *Nelson 353*, in ravines back of Piti, October and December.

The type of *Riedleia villosissima* Presl was from Guam, but the species was overlooked by me in preparing the manuscript of my first paper on the Guam flora. Presl's description applies unmistakably to the species described by me as *Melochia hirsutissima*, the description apparently having been based on the uppermost and younger leaves.

FLACOURTIACEAE

XYLOSMA Forster f.

XYLOSMA NELSONII nom. nov.

Flacourtia integrifolia Merr. in Philip. Journ. Sci. 9 (1914) Bot. 115, non *Xylosma integrifolium* Clos.

GUAM, *Nelson 274, 322*, March and December, 1918; *Guam Experiment Station 466*, July, 1912.

Additional material with young fruits shows this species to belong in the genus *Xylosma* rather than in *Flacourtia* where it was originally placed.

RUBIACEAE

HEDYOTIS Linnaeus

HEDYOTIS FRUTICULOSA (Volk.) comb. nov.

Oldenlandia fruticulosa Volk. in Engl. Bot. Jahrb. 31 (1901) 475.

GUAM, *Nelson 268*, in small damp ravines at Santa Rosa, March, 1918. The third species of the genus from Guam, the specimen agreeing closely with *Volkens 72* and *171* from Yap, cotype material of the species.

TIMONIUS (Rumph.) de Candolle

TIMONIUS NITIDUS (Bartl.) F.-Vill. Novis. App. Fl. Filip. (1880) 109.

Petesia nitida Bartl. in DC. Prodr. 4 (1830) 395.

The original description is short and was based on material collected by Haenke "in insulis Philippicis et Marianis." A part of the original collection is preserved in the Bernhardt herbarium at the Missouri Botanical Garden, an examination of which shows that the species is different from any of the rather numerous forms definitely known from the Philippines, but that this cotype material exactly matches several recent collections from Guam. I accordingly assume that the Philippine locality cited in the original description is erroneous and that the actual specimens came from Guam. It is represented by the following specimens: *Guerrero 762*, *Nelson 16, 138, 361*, collected at Behia, Masso, and near Piti, where it grows in thickets in ravines and along streams. The local names recorded are *sumac lada* and *maholoc layu*.

COMPOSITAE

BLUMEA de Candolle

BLUMEA LACINIATA (Roxb.) DC. Prodr. 5 (1836) 436.

GUAM, *Nelson 338*, in damp places near Abu, December, 1918. The second species of the genus to be found in Guam, doubtless introduced. Tropical Asia and Malaya.